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Response to Student Literacy Needs at Mother of Sorrows Catholic School

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Nearly 90% of intermediate and middle school students from low-income families in the United States are not proficient in reading. This action research project used a quasi-experimental design to determine the effectiveness of a multi-component reading intervention program for students in grades four through eight at Mother of Sorrows Catholic School in Los Angeles, California. The study analyzed standardized measures for fluency, word study, and reading comprehension. It also examined the program's influence on student perceptions of reading. Data analysis indicated that all five grades achieved a statistically significant increase between pretest and posttest scores for all three areas of reading. In addition, students were able to make comparable gains regardless of their initial performance above or below grade level.

The present condition of literacy in the United States is alarming. According to the 2009 National Assessment of Educational Progress, 68% of fourth grade students and 69% of eighth grade students are not proficient in reading (National Center for Education Statistics, 2010). These numbers increase dramatically for students from low-income families. Ninety percent of fourth grade students and 89% of eighth grade students who qualify for the National School Lunch Program read below grade level (National Center for Education Statistics, 2010). The urgent need to improve our nation's literacy programs has not gone unnoticed by researchers. Several studies have demonstrated that students who struggle with reading in their first three years of school rarely achieve grade-level reading skills in later education (Torgesen & Burgess, 1998; Torgesen, Rashotte, & Alexander, 2001). Due to this research, the primary focus for improving reading has been on the implementation of effective early literacy instruction in the primary grades. This trend was supported by the federal government's Reading First initiative, which funded research-based early literacy programs for students in kindergarten through 3rd grade. Though these programs are clearly essential for fostering the reading skills of our youngest students, schools must not overlook the needs of the substantial number of older students who still struggle with reading.

Mother of Sorrows Catholic School has not been immune to low performance in literacy. Located in a low-income, urban neighborhood, Mother of Sorrows Catholic School has faced numerous challenges since its founding by the Sisters of Notre Dame de Namur in 1948. After 34 years of service, the sisters withdrew from the community in 1982, leaving a lay administration to manage the school. The subsequent years were characterized by frequent staff and administration turnover and a drastic drop in enrollment resulting in financial difficulties. The academic program was also affected, and students regularly performed well below the national average. By 1999, the parish was ready to close the school. To prevent its closure and improve the service provided to the community, the Daughters of Charity of St. Vincent de Paul (DC) assumed the administration of the school.

Though the doors stayed open, severe financial hardships remained. To achieve financial stability, the Daughters of Charity increased their involvement in 2002 by co-sponsoring the school with the archdiocese. In accordance with the co-sponsorship agreement, the Daughters of Charity education councilor—who oversees all education missions in the Province of the West—assumed all administrative and financial responsibilities previously held by the pastor. Since that time, the school has been guided by the Vincentian charism to honor Christ “as the source and model of all charity, serving Him corporally and spiritually in the person of the poor” (Congregation of the Mission, 2004, p. 28). In support of this mission, no family is turned away because of financial hardship. As a result, 98% of the student body qualifies for the National School Lunch Program. To better support the needs of these students, numerous improvements have been made to the school.

To facilitate this renewal, substantial emphasis has been placed on improving the curricular and instructional programs at the school. The academic needs of the students in the inner-city community are great. Mother of Sorrows Catholic School serves children who are predominantly first- and second-generation Latino immigrants. Each year, approximately 77% of the students are English-language learners and 60% enter kindergarten without an awareness of letters, sounds, or age-appropriate vocabulary. To assist with the instruction of the students in the primary grades, the school adopted a research-based reading program in 2006 with funds provided by Reading First. This program was supported through extensive professional development and collaboration among the faculty. In the spring of 2010, Mother of Sorrows Catholic School opened a preschool to provide early educational experiences and additional literacy opportunities to the children in the community. The

school also developed a parent education program to foster the role of parents as the primary educators both before and throughout the formal education process.

Surrounded by an area often associated with drugs, violence, and gang activity, Mother of Sorrows Catholic School has successfully created an environment that is dedicated to serving the needs of the whole child. Despite the recent growth in academic achievement, there are still significant areas of concern that need to be addressed. Though the school has worked over the last four years to solidify the literacy foundations provided in the lower grades, 63% of the students in grades four through eight are still reading below grade level. In seventh grade alone, 85% perform below proficiency, 48% of whom are three or four years below grade level. To exacerbate this issue, the intermediate and middle school curriculum focuses primarily on content—which presumes a level of literacy and reading ability—and the teachers have not been trained in early literacy strategies that these advanced students have not yet mastered. As the principal of Mother of Sorrows Catholic School, it is my job to ensure that our school is meeting the needs of all its students. In justice to our children, we cannot stand by and wait for the effects of the early literacy program in the primary grades to eventually manifest themselves in the intermediate and middle grades. It is imperative that we implement an effective reading intervention program for the current students in grades four through eight who are reading below grade level.

Purpose Statement

The purpose of this action research project was to determine the effectiveness of a reading intervention program on improving mastery of fluency, word study, and comprehension for students in grades four through eight. The major research questions considered in this action research project include:

1. Does the reading intervention program improve student performance on standardized fluency, word study, and comprehension assessments?
2. Does the reading intervention program influence student perceptions of reading?

Literature Review

Catholic social teaching refers to the social message of the Gospel as it is articulated through papal, conciliar, and episcopal documents. In particular, these documents outline a framework for how people should conduct their lives in relation to others. The life and dignity of the human person lies at the very foundation of Catholic social teaching. By virtue of this inherent dignity, all people “of whatever race, condition or age...have an inalienable right to education” (Vatican Council II, 1965, no. 1). Providing access to education, however, is not enough. To fulfill their responsibilities, schools must create systems to support each child, both spiritually and academically.

These responsibilities become even greater when a school serves children who are marginalized by poverty, race, language, or disability. Following Jesus’ words that “whatever you did for one of these least brothers of mine, you did for me,” Catholic social teaching calls us to make a preferential option for the poor and vulnerable (Matthew 25:40). This commitment involves empowering the marginalized to become active participants in society. By their very nature as educational institutions, Catholic schools have the ability to play an active role in this mission; they have a responsibility to develop programs that support children and families who do not have a voice. Pope John Paul II expressed that “it will never be possible to free the needy from their poverty unless they are first freed from the impoverishment arising from the lack of adequate education” (John Paul II, 1999, no. 71). To improve the quality of education provided to the marginalized, the United States Conference of Catholic Bishops supported “comprehensive and innovative educational approaches to improve the academic progress of some of the most disadvantaged young people” (United States Conference of Catholic Bishops, 2005, p. 9). Following the social teachings of the Church, many Catholic schools have the unique opportunity and responsibility to support the needs of all children.

Goal of Reading

In the United States, educators often make a distinction between learning to read in the primary grades and reading to learn in the intermediate, middle, and upper grades (Allington, 2002). Over the past decade, both researchers and legislators have emphasized the need to improve early literacy instruction for young children. The purpose of reading changes, however, as students progress through their schooling. Due to the increased focus on content in the up-

per grade curricula, the ultimate goal of reading for older students is effective comprehension, i.e. reading to learn (Edmonds, Vaughn, Wexler, Reutebuch, Cable, & Tackett, 2009). Despite this advanced goal, numerous intermediate and secondary students still struggle with reading fundamentals, making it difficult for them to comprehend grade-level content (National Center for Education Statistics, 2010; Torgesen, et al., 2001). The majority of adolescent courses, however, are not structured to address this issue. In an era of high-stakes testing, time is rarely taken in content-based classes to provide reading instruction or interventions. In addition, few secondary teachers are trained in early literacy strategies (Shippen, Houchins, Steventon, & Sartor, 2005).

Despite these obstacles, research has demonstrated that older students can benefit from reading interventions (Edmonds et al., 2009; Roberts, Torgesen, Boardman, & Scammacca, 2008; Scammacca, Roberts, Vaughn, Edmonds, Wexler, & Reutebuch, 2007). For example, Scammacca et al. (2007) conducted a meta-analysis of 31 studies involving reading interventions for adolescents. They reported an effect size of .95 and indicated that groups receiving reading interventions, on average, outscored comparison groups by nearly one standard deviation (Scammacca et al., 2007).

Multi-Component Approach to Intervention

To be effective, reading interventions must be tailored to meet the specific needs of individual students. Older students who lack fundamental literacy skills require interventions in fluency and word study. According to research, effective fluency instruction includes four components: clear criteria for performance; systematic progression into more challenging material; implementation by adults; and, regular correction and feedback (Chard, Vaughn, & Tyler, 2002; National Reading Panel, 2000; Spencer & Manis, 2010; Therrien, 2004). Comprehensive word study programs address phonics, spelling, and word recognition. In these programs, effective instruction guides students to recognize word patterns through a sequence of word sorts that progress through the stages of spelling development (Bear, Invernizzi, Templeton, & Johnston, 2008; Leipzig, 2000).

Though the lower-order interventions for fluency and word study are necessary to improve word-level performance, they do not directly improve reading comprehension, a higher-order skill. According to Roberts, Torgesen, Boardman, and Scammacca (2008), interventions for older students must go beyond lower-order skills; they must also address vocabulary and compre-

hension. Roberts et al. (2008) acknowledge, however, that traditional direct instruction in vocabulary was not likely to generalize to an overall improvement in comprehension. To provide a more direct impact on comprehension, they emphasize the need to guide students to use comprehension-monitoring and summarizing strategies. To achieve independent comprehension, students “need to know which strategy to use, when to use it, and why” (Roberts et al., 2008, p. 67).

Meta-analyses conducted by Scammacca et al. (2007) and Edmonds et al. (2009) also support the need for a multi-component approach. In addition to providing assistance with word study and fluency, effective interventions in these studies included explicit instruction in reading comprehension strategies. For example, in a study where students in grades four through eight participated in repeated reading (fluency) and question generating (comprehension) activities, students demonstrated significant gains as compared to the control group in both their fluency and comprehension of a passage (Therrien, Wickstrom, & Jones, 2006). Other studies showed similar success with instruction in reading comprehension strategies, including determining text structure, activating prior knowledge, utilizing graphic organizers, monitoring understanding, summarizing information, making inferences, and using visualization (Scammacca et al., 2007; Edmonds et al., 2009).

Standardized Reading Measures

Though previous studies have reported significant gains in reading comprehension when using non-standard measures (e.g., teacher-made tests), they generally have demonstrated only small to moderate improvements in student performance on standardized, norm-referenced measures. For example, in contrast to the effect size of .97 for studies utilizing non-standard measures, the eight studies using standardized measures in the Scammacca et al. (2007) meta-analysis yielded an effect size of only .35, and the seven studies employing standardized measures in the Edmonds et al. (2009) meta-analysis yielded an effect size of .47. Edmonds et al. (2009) outlined several possible explanations for these findings. First, though all of the studies incorporated a multi-component approach to intervention, very few of them included activities to assist students with applying reading comprehension skills to novel situations. As a result, though students often performed well in the specific context of the intervention, they did not achieve the same results in unrelated scenarios. For example, Alfassi (1998) indicated a significant effect size of 1.04 when using

researcher-developed measures involving the passages used during the interventions. This effect size decreased to .35, however, when using standardized measures involving unrelated passages.

The second explanation for the findings referred to the type of text utilized in the studies. To be successful in school, students must be able to comprehend a variety of texts independently. In particular, secondary students are increasingly expected to comprehend expository texts, both in class and on standardized assessments. The studies in the analyses, however, focused primarily on narrative texts. To address this concern, Edmonds et al. (2009) recommended that reading comprehension strategies be applied in all content-area classes throughout the day, thus ensuring numerous opportunities for application to expository texts.

In their final explanation for student performance on standardized measures, Edmonds et al. (2009) suggested that students who require interventions often read below grade level standards. As a result, these students must make more than a year's progress to close the gap between their reading skills and those of the average student. The previous studies, however, provided little evidence as to whether the interventions were able to bring students' reading ability to grade level. In order to ensure that students achieve at or above grade level, Edmonds et al. (2009) recommended that interventions should be both intensive and sustained, extending over several months or years.

Implications for Action Research

In response to the Church's social teachings, Catholic schools have a moral imperative to implement programs that will support the needs of marginalized students. To maximize their effectiveness, these programs must be informed by research. In the case of this project, research identifies a pressing need for the implementation of multi-component interventions for older students who struggle with reading. These interventions should be intensive, sustained, and designed to meet the specific needs of the adolescent learner. To be effective, they must incorporate both lower and higher-order skills as well as opportunities for independent application to expository texts. The interventions provided in this action research project were chosen on these tenets and are explained in greater detail in the following section.

Method

Participants

Participants ($n=112$) were all middle school students at Mother of Sorrows Catholic School: 21 fourth-grade students (10 male, 11 female), 16 fifth-grade students (six male, 10 female), 24 sixth-grade students (11 male, 13 female), 27 seventh-grade students (nine male, 18 female), and 24 eighth-grade students (10 male, 14 female). The participants in grades four and five were taught in a self-contained classroom. The participants in grades six through eight were departmentalized and rotated between three teachers. Ninety-seven percent of the participants were Latino, and 3% were African American. Ninety-eight percent of the participants qualified for free or reduced lunch, and 77% were English language learners. All of the participants attended Mother of Sorrows Catholic School, a PreK-8 Catholic school located in an urban area, and were selected from a convenience sample of students enrolled in the intermediate and middle grades.

Instruments and Materials

Fluency instrument. The fluency level of all participants was assessed with the *MAFI-R* oral reading fluency measures at the beginning and end of the study (Howell, 2007). These measures included three grade-level passages. Students were asked to read each passage for 1 minute. On a separate form, the teacher or reading instructor recorded the total number of words read and marked any errors made by the student. Errors consisted of words that were skipped, not pronounced correctly within 3 seconds, mispronounced, or repeatedly mispronounced later in the passage. At the end of each passage, three calculations were determined: rate of words correct per minute (wcpm); rate of words incorrect per minute (wepm); and, accuracy. Wcpm was calculated by subtracting the total errors per minute from the total words read per minute. Wepm was calculated by adding the errors per minute. Accuracy was calculated by subtracting the total number of errors prior to the 100th word from 100. After all three passages were completed, the median score for each parameter (wcpm, wepm, and accuracy) was recorded.

Word study instrument. Two instruments were used to assess the students' performance with word study. The first instrument was a Spelling Inventory, given at the beginning and end of the study (Bear, et al., 2008). Students in grades four and five were given the Elementary Spelling Inventory.

This inventory consisted of 25 words designed to assess the students' mastery of word study features including letter-name alphabetic spellings, within-word patterns, syllables and affixes, and derivational relations. Example words included bed, train, shopping, and fortunate. Students in grades six through eight were given the Upper-level Spelling Inventory, which included 31 words involving within-word patterns, syllables and affixes, and derivational relations. Example words included smudge, sailor, monarchy, and medicinal. The spelling inventories were scored with the corresponding feature guide. Both word accuracy (1-point per word) and feature accuracy (1-point per feature) were recorded and combined for a total score. See Appendix A for a sample feature guide.

The second word study instrument was composed of weekly assessments of specific word lists. Each assessment involved spelling and sorting the assigned words as well as applying the rules to related words. One point was given for each word with correct spelling and correct placement. Students in the derivational relations stage were also asked to write sentences that incorporated the words and definitions in an appropriate context. See Appendix B for a sample word list assessment.

Reading comprehension instruments. Two instruments were used to assess reading comprehension. The first teacher-made instrument assessed strategy application. It involved completing graphic organizers for specific comprehension strategies applied to novel narrative and expository texts. See Appendix C for a sample graphic organizer. The second instrument assessed reading comprehension through the standardized, norm-referenced *Gates-MacGinitie Reading Test (GMRT)* involving 48 multiple choice questions (MacGinitie, MacGinitie, Maria, Dreyer, & Hughes, 2006).

Survey instrument. An original survey instrument was used to assess student perceptions of reading before and after the interventions (see Appendix D). The survey consisted of 15 questions involving a 4-point Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (4). The questions asked participants to determine their level of agreement or disagreement with statements such as "I am a confident reader."

Design and Procedure

This action research study was conducted from August 2010 through March 2011 using a quasi-experimental within-group design. During the week of August 25, 2010, participants were given the initial fluency and spelling inventory

assessments to serve as a control. The initial comprehension assessment was given the week of September 8, 2010. Progress was monitored either monthly (fluency) or at the end of each unit (word study and comprehension) with the final assessments given the week of March 15, 2011. A survey was also given at the beginning of the study on August 25 and again at the end of the study on March 15. All assessments and surveys were given in the participants' classrooms during the normal school day by either the classroom teacher or reading instructor.

Fluency interventions. All students, regardless of previous fluency scores, participated in sound-spelling practice, choral reads, triple reads, and fluency folders involving high-frequency word and passage practice. In addition, all students were made aware of their grade level wcpm target. Students ($n=16$) who performed below 100 wcpm on the initial fluency assessment also received one-on-one instruction three times per week in the Great Leaps reading program (Campbell, 1995). After the benchmark assessment in December, students ($n=27$) who performed 10 or more words below the 50th percentile norm also received one-on-one instruction three times per week in the Great Leaps reading program. This one-on-one instruction included three components: phonemic awareness; phrases; and, passages. The first two components involved a series of sounds to be identified and phrases to be read within 1 minute. The third component involved passages that began with 30 readily accessible words and gradually increased by word number and word difficulty. The program was designed for students to master a passage after they read it one time in under a minute, but Wexler, Vaughn, Edmonds, and Reutebuch (2008) recommended that students should be encouraged to read low-word difficulty passages with the same word rate that is required of their grade level. To reflect this research, students were asked to continuously reread a *Great Leaps* passage until they had achieved their grade-level target rate within one minute. These one-on-one interventions took place in the classroom during universal access time and were facilitated by the reading instructor.

Word study interventions. All students participated in the *Words Their Way: Word Study for Phonics, Vocabulary, and Spelling Instruction* program (Bear, et al., 2008). Based on their performance on the initial Spelling Inventory, participants were placed in small groups (two to six students) and received instruction in within-word patterns, syllables and affixes, or derivational relations. The intervention focused on weekly word lists and involved multiple sorting techniques through direct instruction, paired work, and independent

practice. Students who could not transfer the spelling rules to new words at the end of a unit were required to repeat the corresponding word lists. Students receiving instruction in derivational relations were also required to know the meaning of Greek and Latin roots and apply their weekly words correctly in context. The intervention took place within the classroom and was facilitated by the classroom teacher, reading instructor, or principal.

Reading comprehension interventions. The reading comprehension interventions involved two components. First, all students participated in the *SRA Reading Laboratory and Accelerated Reader* programs, which focused on short passage and extended passage comprehension, respectively. For the *SRA Reading Laboratory*, students were initially placed on a reading level based on their performance on the program's reading comprehension assessment. Participants progressed independently through the program during 30-minute intervals provided twice a week. For *Accelerated Reader*, students were initially placed on a reading level based on their performance on the STAR Reading assessment and were asked to complete at least one novel and corresponding online comprehension assessment every two weeks. In each classroom library, high-interest books were labeled and organized according to the Accelerated Reader ATOS book levels. Independent reading time was provided during the school day, and 20 additional minutes were assigned each evening. Participants were retested on the STAR Reading assessment at the end of each quarter to determine their progression through the program.

The second component of the intervention involved instruction in and application of reading comprehension strategies. All participants received direct instruction in seven main strategies: predict; connect; summarize; monitor and clarify; analyze; infer; and, evaluate. All participants were guided to apply the strategies to narrative and expository texts through a series of multiple exposures with decreasing amounts of support. Seven graphic organizers, corresponding to each of the seven strategies, were used to guide application of the strategies and provide feedback. In addition, five daily multiple-choice questions provided opportunities for students to apply the strategies in a standardized test-like setting. Students ($n=21$) who performed more than two years below grade level on the initial *GMRT* comprehension assessment were also given small group after-school instruction by the classroom teacher or reading instructor beginning in mid-October. These students were guided to apply the strategies to narrative and expository texts that were on their reading level and then gradually progressed to texts of greater difficulty.

Findings

Student Performance

Descriptive and inferential statistics were used to examine whether the reading intervention program improved student performance in fluency, word study, and comprehension during the study.

Fluency. For fluency, separate t-tests revealed that all five grades achieved a statistically significant increase between pretest and posttest scores on the *MASI-R* oral reading fluency measures (see Table 1). Students in grade six made the largest average gain ($M=38.75$, $SD=13.90$) in words read correctly per minute. Though students in grade eight made the smallest average gain ($M=24.25$, $SD=17.52$), they achieved nearly double the average national growth ($M=13$) for students in grade eight during the same time period. To place all of the gains in a national context, the total number of students in grades four through eight performing above the 50th percentile increased from 65% on the pretest to 81% on the posttest (see Table 2). Grade six made the largest percentile gain in students performing above the 50th percentile from pretest (50%) to posttest (79%), followed by grade eight (pretest, 54%; posttest, 79%). On the posttest, grades four and seven had the largest percentage of students performing above the 50th percentile, 90% and 85%, respectively. When the

Table 1

Mean, Standard Deviation, and t-value for Effect of Interventions on Fluency Measured by Words Read Correctly per Minute

Grade	Pretest		Posttest		Gain Score		df	t-value
	M	SD	M	SD	M	SD		
4	116.52	19.89	141.52	21.63	25.00	9.47	20	-12.10*
5	113.50	21.65	140.25	27.70	26.75	11.29	15	-9.47*
6	125.38	34.48	164.13	38.98	38.75	13.90	23	-13.66*
7	143.59	25.54	171.74	27.40	28.15	14.26	26	-10.26*
8	141.29	25.16	165.54	35.55	24.25	17.52	23	-6.78*

Note.* $p < .05$

students were categorized by their individual pretest national percentile range, students in all percentile groups made similar gains: 0-25 NPR, $M=28.80$, $SD=14.40$; 26-50 NPR, $M=28.60$, $SD=12.90$; 51-75 NPR, $M=29.23$, $SD=14.05$; and 76-100 NPR, $M=29.06$, $SD=17.33$. Thus, regardless of their initial fluency performance, all students were able to achieve statistically significant growth.

Table 2

Number of Students Performing within National Percentile Ranges on Fluency Pretest and Posttest

National Percentile	Grade 4		Grade 5		Grade 6		Grade 7		Grade 8	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
76-100	9	10	3	6	5	11	9	17	6	8
51-75	9	9	6	5	7	8	11	6	7	11
26-50	3	2	5	4	7	4	6	4	9	3
0-25	0	0	2	1	5	1	1	0	2	2

Note. NPR determined by 2006 Hasbrouck and Tindal oral reading data. Pretest reflects Fall norms. Posttest reflects Winter norms.

Word study. To assess gains in word study, grades four and five took the Elementary Spelling Inventory, and grades six through eight took the Upper-

Table 3

Mean, Standard Deviation, and t-value for Effect of Interventions on Word Study Measured by Total of Spelling and Feature Points

Grade	Pretest		Posttest		Gain Score		df	t-value
	M	SD	M	SD	M	SD		
4	70.00	7.31	72.86	8.55	2.86	4.86	20	-2.69*
5	75.13	7.36	78.62	5.89	3.50	5.15	15	-2.72*
6	55.39	17.58	65.22	19.08	9.82	6.51	22	-7.24*
7	65.44	16.94	73.26	14.13	7.81	6.40	26	-6.34*
8	65.63	23.14	70.63	22.21	5.00	5.02	24	-4.88*

Note. * $p < .05$; Grades 4 and 5 reflect Elementary Spelling Inventory; Grades 6-8 reflect Upper-level Spelling Inventory

level Spelling Inventory. Separate t-tests revealed that all five grades achieved a statistically significant increase between pretest and posttest scores (see Table 3). Grade five achieved the largest gains ($M=3.50$, $SD=5.15$) on the Elementary Spelling Inventory, and grade six achieved the largest gains ($M=9.82$, $SD=6.51$) on the Upper-level Spelling Inventory. In addition, all grades demonstrated an upward movement of students through the spelling stages (see Table 4).

Reading comprehension. For comprehension, separate t-tests revealed that all five grades achieved a statistically significant increase between pretest and posttest grade equivalency scores on the Gates-MacGinitie Reading Test (see Table 5). On the posttest, students in every grade averaged on or above grade level: grade four, $M=5.08$, $SD=1.90$; grade five, $M=6.32$, $SD=2.64$; grade six, $M=7.23$, $SD=1.72$; grade seven, $M=7.56$, $SD=2.58$; and grade eight, $M=8.89$,

Table 4

Number of Students Performing within Spelling Stages on Word Study Pretest and Posttest

Spelling Stage	Grade 4		Grade 5		Grade 6		Grade 7		Grade 8	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Late DR	0	0	0	0	0	3	4	5	5	7
Middle DR	0	1	0	0	1	0	0	2	1	3
Early DR	0	1	1	5	1	3	5	3	2	1
Late SA	2	4	2	2	5	6	3	7	3	3
Middle SA	3	1	3	0	1	3	4	2	1	1
Early SA	0	4	1	1	4	1	4	3	0	2
Late WWP	9	8	3	7	6	5	7	5	9	5
Middle WWP	5	2	4	1	3	1	0	0	3	2
Early WWP	0	0	2	0	1	0	0	0	0	0

Note. DR = Derivational Relations (upper stage), SA = Syllables and Affixes (middle stage), WWP = Within Word Pattern (lower stage); Direction of desired growth is from early WWP toward late DR

SD=2.88. In addition, during the study participants from every grade level made above average gains. Thus, all grades were able to demonstrate more than 6.75 months of growth, corresponding to a grade equivalency increase of more than .68 (see Table 5). Students in grade seven made the largest average gains

Table 5

Mean, Standard Deviation, and t-value for Effect of Interventions on Reading Comprehension Measured by Grade Equivalent

Grade	Pretest		Posttest		Gain Score		df	t-value
	M	SD	M	SD	M	SD		
4	4.03	1.12	5.08	1.90	1.05	1.52	20	-3.16*
5	4.70	1.64	6.32	2.64	1.62	1.68	15	-3.86*
6	5.68	1.52	7.23	1.72	1.55	0.91	22	-8.20*
7	5.77	1.99	7.56	2.58	1.78	1.82	26	-5.10*
8	7.96	2.49	8.89	2.88	0.92	1.59	23	-2.84*

Note.* $p < .05$

($M=1.78$, $SD=1.82$). Students in grades five and six also averaged more than 1.5 years growth. To put the gains in a national context, the number of students in grades four through eight performing on or above grade level increased from 37% on the pretest to 61% on the posttest (see Table 6). Grade six had the largest increase in students performing on or above grade level (43% to 87%),

Table 6

Number of Students Performing within Grade Equivalent Ranges on Reading Comprehension Pretest and Posttest

Grade Equivalent Range	Grade 4		Grade 5		Grade 6		Grade 7		Grade 8	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
2.1+ above	0	4	0	4	1	4	2	7	4	7
1.1-2.0 above	2	3	2	0	2	2	0	1	2	0
0.1-1.0 above	2	3	2	4	0	5	1	2	2	1
On level	6	4	3	1	7	9	1	4	2	3
0.1-1.0 below	7	6	2	5	7	1	4	2	3	5
1.1-2.0 below	4	1	4	2	3	2	8	9	7	3
2.1+ below	0	0	3	0	3	0	11	2	4	5

followed by grade seven (15% to 52%).

An analysis of variance (ANOVA) revealed that the average improvement in reading comprehension did not differ among grades four through eight, $F(4, 104)=1.41$, $p > .05$. As noted previously, every grade made above average gains. An additional analysis of variance (ANOVA) indicated that the average improvement in reading comprehension also did not differ by initial number of years above or below grade level, $F(6, 106)=2.89$, $p > .05$. When categorized in relation to the pretest grade equivalent, all groups made above average gains (see Table 7). The students who initially scored 0.1-1.0 years above grade level averaged the largest gains ($M=1.86$, $SD=2.23$), and the students who initially

Table 7

Mean and Standard Deviation for Comprehension Gain Score Relative to Initial Grade Equivalent Ranges

Pretest Grade Equivalent	Comprehensive Gain Score	
	M	SD
2.1+ above	0.81	1.63
1.1-2.0 above	1.61	1.29
0.1-1.0 above	1.86	2.23
On level	1.40	2.25
0.1-1.0 below	1.37	1.39
1.1-2.0 below	1.38	1.41
2.1+ below	1.33	1.00

scored more than 2.1 years above grade level averaged the smallest gains

($M=0.81$, $SD=1.63$). Three of the seven students in this group, however, initially scored on the highest possible grade equivalent and thus demonstrated a growth of 0.00 on the posttest. When the three students were removed from the category, the remaining students who initially scored more than 2.1 years above grade level averaged gains of 1.88 ($SD = 0.78$).

Table 8

Mean of Posttest Survey Results for Student Perceptions of Reading

Survey Question	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
<u>Reading Confidence</u>					
I am a confident reader.	2.95	3.13	2.96	2.81	2.83
I enjoy reading when I have free time.	2.89	2.88	2.54	2.67	2.54
I am confident I will finish a new book that I start.	3.47	3.50	3.29	3.37	2.88
I understand the novels I read.	3.00	3.31	3.38	3.26	3.38
I feel confident when I read out loud in class.	3.26	2.56	2.83	2.52	2.58
I feel confident when taking a reading test.	2.79	3.43	3.21	2.81	2.96
I understand the textbooks I read for school.	3.00	2.69	3.13	3.04	3.00
<u>Strategy Use</u>					
I make predictions when I read on my own.	2.84	2.69	2.50	2.78	2.38
I monitor and clarify when I read on my own.	2.74	2.43	2.42	2.26	2.29
I summarize when I read on my own.	2.74	2.60	2.42	2.70	2.17
I make inferences when I read on my own.	2.26	2.75	1.92	2.15	2.79
I connect what I read to my own life.	3.21	2.75	2.96	2.74	3.04
I connect what I read to other books.	3.47	2.56	2.63	3.07	2.96
I connect what I read to the world.	2.74	2.94	2.54	2.78	3.13
I make evaluations when I read on my own.	3.11	2.56	1.79	2.00	2.96

Student Perceptions

Descriptive and inferential statistics were also used to analyze whether the reading intervention program influenced student perceptions of reading.

Reading confidence. On the posttest survey, students in all five grades expressed positive perceptions of reading confidence (see Table 8). Grades four ($M=3.47$, $SD=0.84$), five ($M=3.50$, $SD=0.63$), and seven ($M=3.37$, $SD=0.89$) indicated the highest amount of agreement with the statement “I am confident I will finish a new book that I start.” Grades six ($M=3.38$, $SD=0.71$) and eight ($M=3.38$, $SD=0.58$) indicated the highest amount of agreement with the statement “I understand the novels I read.”

Though the responses on the posttest survey were positive, the data from the pre- and posttest surveys did not indicate that the reading intervention program significantly influenced reading confidence as measured by the statement “I am a confident reader.” A *t*-test, however, did reveal a significant increase in the agreement of grades six ($t(23)=-2.58$, $p < .05$) and eight ($t(23)=-2.01$, $p < .05$) with the statement “I understand the novels that I read.” For grade six, a *t*-test also revealed a significant increase in the students’ agreement with the statement “I feel confident when taking a reading test,” $t(23)=-3.39$, $p < .05$. In addition, for grade four, a *t*-test indicated that there was a significant increase in the agreement of students with the statement “I feel confident when I read out loud in class,” $t(18)=-2.00$, $p < .05$.

Strategy use. When comparing pre- and posttest survey data, separate *t*-tests revealed that students in grade seven expressed a significant increase in their independent use of four strategies: predict, $t(26)=-1.99$, $p < .05$; monitor and clarify, $t(26)=-2.66$, $p < .05$; summarize $t(26)=-1.78$, $p < .05$; and infer, $t(26)=-2.67$, $p < .05$. Students in grades four and eight indicated a significant increase in their independent use of two strategies: infer (grade 4, $t(18)=-2.47$, $p < .05$; grade 8, $t(23)=-3.96$, $p < .05$) and evaluate (grade 4, $t(18)=-2.38$, $p < .05$; grade 8, $t(23)=-3.81$, $p < .05$). In addition, students in grade six expressed a significant increase in one strategy: connect text to self, $t(23)=-3.50$, $p < .05$. For students in grade five, however, the *t*-tests did not indicate a significant increase in student perceptions of their independent use of any comprehension strategy.

Relationship between Performance and Perceptions

Finally, a correlation was conducted to determine the relationship between student performance and perceptions. Student performance on the *GMRT* showed a relatively strong, positive correlation with student perceptions of reading confidence, $r(110)=0.45$, $p < .01$. In contrast, student performance on the *GMRT* showed only a moderate, positive correlation with student perceptions of independent strategy use, $r(110)=0.24$, $p < .01$.

The data from this action research project revealed the overall effectiveness of the multi-component reading intervention program. All five grades achieved a statistically significant increase between pretest and posttest scores for all three areas of reading: fluency, word study, and comprehension. In addition, students were able to make comparable gains regardless of their initial performance. Student perceptions of reading confidence were positive for all grades, while perceptions of strategy use varied for each grade. The following section examines the implications of these findings.

Discussion and Extension

According to results of the 2009 National Assessment of Education Progress, 68% of fourth grade students and 69% of eighth grade students were not proficient in reading (National Center for Education Statistics, 2010). These numbers increased dramatically for students from low-income families; 90% of fourth grade students and 89% of eighth grade students who qualified for the National School Lunch Program read below grade level (National Center for Education Statistics, 2010). Though performing above the national average for schools serving low-income students, Mother of Sorrows Catholic School still had an alarming number of students who struggled with reading as measured by teacher reports and standardized assessments. In August 2010, 63% percent of students in grades four through eight were not proficient in reading. In grade seven alone, 85% performed below grade level, 48% of whom had deficits of 3 or 4 years. Though nationally the primary emphasis for improving reading has been placed on implementing effective early literacy strategies, research has demonstrated that older students can also benefit from reading interventions (Edmonds et al., 2009; Roberts, et al., 2008; Scammacca et al., 2007). To be effective, however, these interventions must be tailored to meet the specific needs of the students.

Fluency

In particular, older students who lack fundamental literacy skills require interventions in fluency and word study. According to research, effective fluency instruction includes four components: clear criteria for performance; systematic progression into more challenging material; implementation by adults; and regular correction and feedback (Chard et al., 2002; National Reading Panel, 2000; Spencer & Manis, 2010; Therrien, 2004). The fluency interventions implemented during this action research project were designed to meet these guidelines. At the end of the study, all five grades achieved a statistically significant increase between pretest and posttest scores (see Table 1). In addition, despite a broad range of initial fluency levels (49 to 200 wcpm), students were able to achieve similar gains regardless of their initial fluency rate.

The research-based interventions were shown to be effective for the majority of the students; a closer analysis of students who scored below the 50th percentile and achieved less than average gains revealed two scenarios. As a result of the interventions, some students ($n=2$) became more accurate yet cautious readers. Thus, though their words read correctly per minute increased very little, their words read incorrectly per minute decreased substantially. Other students ($n=9$) who scored below the 50th percentile and achieved less than average gains in fluency also scored low in word study. As a result, these students were often unable to decode words on a grade-level fluency measure. When given lower-level passages, however, they were able to increase their wcpm. This finding indicates that these students need more time to progressively increase the difficulty level of the passages (Wexler, et al., 2008).

Word Study

Older students who lack fundamental reading skills also need interventions in word study. Effective word study programs guide students to recognize word patterns through a sequence of word sorts that progress through the stages of spelling development (Bear, et al., 2008; Leipzig, 2000). The word study interventions used in this study were designed in this manner. At the end of the study, all five grades achieved a statistically significant increase between pretest and posttest scores, illustrating the effectiveness of the intervention (see Table 3). In addition, despite the broad range of initial levels (early within word patterns to late derivational relations), all students were able to make an upward movement through the spelling stages (see Table 4).

The majority of the students were able to transfer the word study skills to novel situations after only one week of instruction. Some students ($n=7$) in grades seven and eight, however, had to repeat a word sort two or three times before they were able to master the rules. Based on their pretest scores, all of these students were placed in groups receiving instruction in within-word patterns, a spelling stage that is directly taught in grades one and two and typically mastered by the middle of grade four (Bear, et al., 2008; Leipzig, 2000). As a result, these students had to unlearn incorrect spelling habits that they had been using for multiple years. Their difficulty mastering the correct skills exemplifies the need to begin reading interventions in word study at an earlier age.

Comprehension

Though the gains in fluency and word study were significant, they would not be relevant without corresponding gains in reading comprehension. Reflecting current research (Scammacca et al., 2007; Edmonds et al., 2009), the comprehension interventions in this study focused on comprehension strategy instruction and application. By the end of the study, all five grades achieved a statistically significant increase between pretest and posttest grade equivalency scores (see Table 5). In addition, all five grades made above-average growth and concluded the study on or above grade level. Though the initial range of grade equivalencies was substantial (4 years below level to 5 years above level), students were able to make comparable gains regardless of their initial level (see Table 7). As a result, the comprehension interventions were effective not only for the students more than 2 years above level but also for those more than 2 years below level, 38% of whom had been diagnosed with learning disabilities.

Possibly the most significant outcome of the study involved the fact that the comprehension gains were made on a standardized measure. Though previous studies have reported significant gains in reading comprehension when using non-standard measures, they generally have demonstrated only small to moderate improvements in student performance on standardized, norm-referenced measures (Scammacca et al., 2007; Edmonds et al., 2009). The difference in this study likely resulted from three elements critical to the design of the interventions. In addition to being sustained, the interventions involved multiple components that incorporated lower- and higher-order skills and provided opportunities for the application of strategies to novel situations.

Perceptions of Reading

Though assessment performance is an important component, reading proficiency goes beyond the ability to attain grade-level scores. Effective readers must also be actively engaged in the reading process. For pre-adolescent and adolescent readers, engagement in reading is closely tied with motivation. Guthrie and Wigfield (2000) outlined several strategies to foster motivation, including providing clear learning goals, coherent instruction, reading strategy instruction, interesting texts, autonomy support, real-world interactions, collaboration among peers, evaluations aligned with instruction, praise and rewards, and teacher involvement. The interventions implemented in this study incorporated these strategies. As a result, a positive culture of reading was developed in the school. Not only were the students' perceptions of reading positive on the postsurvey, but they also expressed positive views of the interventions throughout the study.

Ultimately, active engagement in reading involves the effective application of comprehension strategies. According to Roberts et al. (2008), students "need to know which strategy to use, when to use it, and why" (p. 67). Though some of the grades indicated a significant increase in their perceived independent use of strategies, the increase for many areas was minimal and the overall perceived independent use of several strategies was low. It is unclear, however, whether the students were not actually applying the strategies or whether they were merely unaware of them. In either case, it is a topic that needs to be addressed in the future in order for all students to be able to achieve independent comprehension.

Application of Findings

This action research project revealed that the multi-component reading intervention program was effective for students in grades four through eight. As a result of these positive findings, and in collaboration with classroom teachers at every grade level, the reading curriculum has been revised for all grades at Mother of Sorrows Catholic School. Developmentally appropriate reading strategies are taught in 2-week modules to students in kindergarten through eighth grade. Classroom teachers worked with the reading specialist to develop organizers and rubrics for each of the reading modules and to administer regular assessments of reading skills. This whole school initiative was fully implemented for the 2011-2012 academic year following an expanded

pilot program during the 2010-2011 academic year. In addition to the marked improvement in student academic performance, this collaborative response to an express school need has positively impacted teacher collaboration, elevated their professional practice, and empowered them to make a positive and sustained change in the life of the students entrusted to their care.

Limitations

The quasi-experimental design of this action research project was a limitation that impacted the generalizability of the findings presented in this paper. The lack of a control condition and the non-random selection of student participants were carefully considered and intentionally included in this action research project given the high need and marked academic deficiency of many of the middle school students. As such, the research elected to enroll all students in the research project to maximize the intended benefits of the innovative literacy program and mitigate any potential stigma on the children for differential participation within the same small school building. Future inquiry could seek additional schools in the same region, enrolling a similar student population, to serve as a control group.

Future Directions

Reflection on the process and outcomes of this study has caused this researcher to look at the middle and upper grade literacy problem in a more comprehensive way. Though the teachers agreed upon a common set of comprehension strategies at the onset of the study, the techniques they used for instruction and feedback varied drastically from grade to grade. By October, it was evident that greater consistency in the instruction and application of the strategies needed to be developed. Collaborating as a professional learning community, four of the teachers worked with me for several weeks to design a comprehensive, school-wide program for comprehension strategy instruction and assessment. In addition to incorporating a consistent set of graphic organizers, this program provided multiple opportunities for oral and written comprehension of novel texts in an effort to guide students toward independent strategy application. Though this new program likely contributed to the significant gains in reading comprehension scores during the study, the results of the posttest survey raise an important question that still needs to be addressed: How can teachers foster the self-regulation of comprehension strategy use? As part of

the school-wide program, the teachers were in the process of creating consistent rubrics to guide the instruction, feedback, and assessment of each strategy. An additional action research study would allow the school to determine whether these rubrics could also be used to promote student self-awareness of independent strategy application.

In response to the Church's social teachings, Catholic schools have a moral imperative to implement programs that will support the needs of all children. The urgency of meeting those needs becomes even greater when our schools serve those who are marginalized by society. At a time when the lack of adequate education is glaringly apparent across the nation, the tremendous dedication of Catholic educators is yielding exceptional results. If this commitment to research-based practices is sustained, "historians will look back on our age and marvel that against great odds, we changed the ending" (Notre Dame Task Force, 2006, p. 19).

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Appendix A

Sample Word Study Feature Guide

Student _____ *Words Their Way* Elementary Spelling Inventory Feature Guide Teacher _____ Grade _____ Date _____

Words Spelled Correctly: ____ / 25 Feature Points: ____ / 62 Total ____ / 87 Spelling Stage _____

Stages and gradations	Emergent Late	Early	Letter Name Middle	Within Word Pattern			Syllables and Affixes			Derivational Relations Early Middle	Bases or Roots	Feature Points	Words Spelled Correctly
	Consonants Begin. Final	Short Vowels	Digraphs	Blends	Long Vowels	Other Vowels	Inflected Endings	Syllable Junctures	Unaccented Final Syllables				
1. bed	b	d e											
2. ship		p i	sh										
3. when		e	wh										
4. lump	l	u		mp									
5. float		t		fl	oa								
6. train		n		tr	ai								
7. place				pl	a-e								
8. drive		v		dr	i-e								
9. bright				br	igh								
10. shopping		o	sh				pping						
11. spoil				sp		oi							
12. serving						er	ving						
13. chewed			ch			ew	ed						
14. carries						ar	ies	rr					
15. marched			ch			ar	ed						
16. shower			sh			ow			er				
17. bottle								tt	le				
18. favor								v	or				
19. ripen								p	en				
20. cellar								ll	ar				
21. pleasure										ure		pleas	
22. fortunate						or				ate		fortun	
23. confident										ent		confid	
24. civilize										ize		civil	
25. opposition										tion		pos	
Totals	17	15	16	17	15	17	15	15	15	15	15	162	125

Appendix B**Sample Word List Assessment**

/d/	/id/	/t/
prayed	waited	picked
cleaned	started	melted
picked	jumped	missed

Appendix C

Sample Reading Comprehension Strategy Graphic Organizer

Monitor

Do I understand the events in this paragraph on this page?	If YES, summarize what you read. If NO, what is your question?
<u>EXAMPLE</u> p. 1 - NO	Why are these children being sent to a professors' house in the countryside?

Clarify

Choose and explain a "clarify" strategy. (Reread, Visualize, Use Context Clues to define unknown words)	Answer to your "monitoring" question:
I reread the paragraph to look for details to answer my question.	The children are being sent to a professor's house in the countryside, because the airplanes were bombing the city. The parents said that the countryside was far from the warfront, so the children would be safer there.

Appendix D

Student Perceptions Survey

Dear Students,

Please answer the following questions to the best of your ability.

Grade (circle one): 4 5 6 7 8

Gender (circle one): Male Female

Please respond to the following questions by circling the answer that is best for you. There are no right or wrong answers. Remember that your answers are anonymous.

I am a confident reader.

Strongly Disagree Disagree Agree Strongly Agree

I enjoy reading when I have free time.

Strongly Disagree Disagree Agree Strongly Agree

I am confident that I will finish a new book that I start.

Strongly Disagree Disagree Agree Strongly Agree

I understand the novels I read.

Strongly Disagree Disagree Agree Strongly Agree

I feel confident when I read out loud in class.

Strongly Disagree Disagree Agree Strongly Agree

I feel confident when I take a reading test.

Strongly Disagree Disagree Agree Strongly Agree

I understand the textbooks I read for school.

Strongly Disagree Disagree Agree Strongly Agree

I make predictions when I read on my own.

Strongly Disagree Disagree Agree Strongly Agree

I monitor and clarify when I read on my own.

Strongly Disagree Disagree Agree Strongly Agree

I summarize when I read on my own.

Strongly Disagree Disagree Agree Strongly Agree

I make inferences when I read on my own.

Strongly Disagree Disagree Agree Strongly Agree

I connect what I read to my own life.

Strongly Disagree Disagree Agree Strongly Agree

I connect what I read to other books.

Strongly Disagree Disagree Agree Strongly Agree

I connect what I read to the world.

Strongly Disagree Disagree Agree Strongly Agree

I make evaluations when I read on my own.

Strongly Disagree Disagree Agree Strongly Agree